

3 . THE BUSINESS VALUE MODEL

We have met many business people who are challenged within their own companies to make the business case for sustainable development. Many companies see environmental protection beyond legal requirements as a luxury they cannot afford. Most smaller firms have neither the capability to develop new technology nor the managerial resources to alter current practices significantly. And for some companies—such as dry cleaners or auto repair shops—concern about the environment represents an active threat to survival. To those who resist these ideas, we recall Aldous Huxley’s words: “Facts do not cease to exist because they are ignored.”

We believe our ideas speak to all business people. For naysayers and newcomers alike, we present a framework that describes tangible business value from caring for the environment. For the leaders of this movement, we offer a framework that describes the financial and operational benefits of environmental and social investments.

This framework, shown in Figure 2, articulates four business drivers for environmental and social stewardship:

- Preserving the right to operate by meeting societal demands
- Reducing cost and liability by making processes cleaner, more efficient, and community-friendly
- Enhancing customer loyalty and market position by taking stewardship for the product through its life cycle



WHAT DRIVES BUSINESSES TO ADOPT SUSTAINABLE DEVELOPMENT?

Sustainable practices allow businesses

- To preserve the right to operate
- To reduce costs and liability
- To increase customer loyalty and market share
- To grow revenue and enter new markets.

- Accelerating revenue growth in new markets for environmentally and socially preferable businesses, products, and services.

Each of these drivers adds to the financial strength of a company by reducing operating risk, lowering costs, or increasing revenue. We have found that even business executives who know very little about environmental or social issues are comfortable with the business concepts in this model.

One question we often hear is, “If the potential for new product and market development through sustainable development is really so big, then why are there so few examples of it?” The answer is risk.

Figure 3 places the four drivers roughly according to both risk and reward. (See Day, 1998.) It shows why few companies have pursued new, sustainable markets to date, even though the rewards may be significant. The risks have just been too high.

Emerging resource constraints are changing the risk-reward ratio, however. As environmental issues rise to the forefront of public debate—as happened with the depletion of the ozone layer, as is

Figure 2. THE BUSINESS VALUE MODEL

BUSINESS VALUE	RIGHT TO OPERATE	COST/LIABILITY REDUCTION	CUSTOMER LOYALTY	NEW MARKETS
ACTION	<ul style="list-style-type: none"> ● WASTE TREATMENT ● COMPLIANCE 	<ul style="list-style-type: none"> ● POLLUTION PREVENTION ● YIELD IMPROVEMENT 	<ul style="list-style-type: none"> ● DESIGN FOR ENVIRONMENT ● SERVICE INTENSITY 	<ul style="list-style-type: none"> ● ENVIRONMENTAL RESTORATION ● SOCIAL RECONSTRUCTION ● STEP CHANGE ● BUSINESS REDEFINITION
ORGANIZATIONAL LEAD	PUBLIC AFFAIRS/GENERAL COUNSEL	MANUFACTURING/OPERATIONS	R&D/DESIGN ENGINEERING/MARKETING	STRATEGIC PLANNING/MARKETING

happening with climate change, and as will happen with biodiversity and other issues—the risks also rise of engaging in franchise protection activities. Long-term investments made today that meet current regulatory requirements may be unacceptable tomorrow. Investments made in hopes of anticipating future regulatory and other requirements may take the wrong shape. For example, one company we have spoken with knows that it must take action on carbon emissions, but is unwilling to do so until the form of future requirements is clearer. If it begins sequestering carbon by investing in forestlands in developing countries, will that count under whatever new system is put in place? If it reduces carbon emissions now at its plants, will that shortly become a new, overly tight baseline on which the company will have to make even costlier reductions?

Although the risks of pre-emptive actions are rising, the risks of new market development are falling as pressures for sustainable development grow. (See Figure 4.) This company now knows that some form of climate change policy will be insti-

Figure 3. THE BUSINESS DRIVERS BY RISK AND REWARD

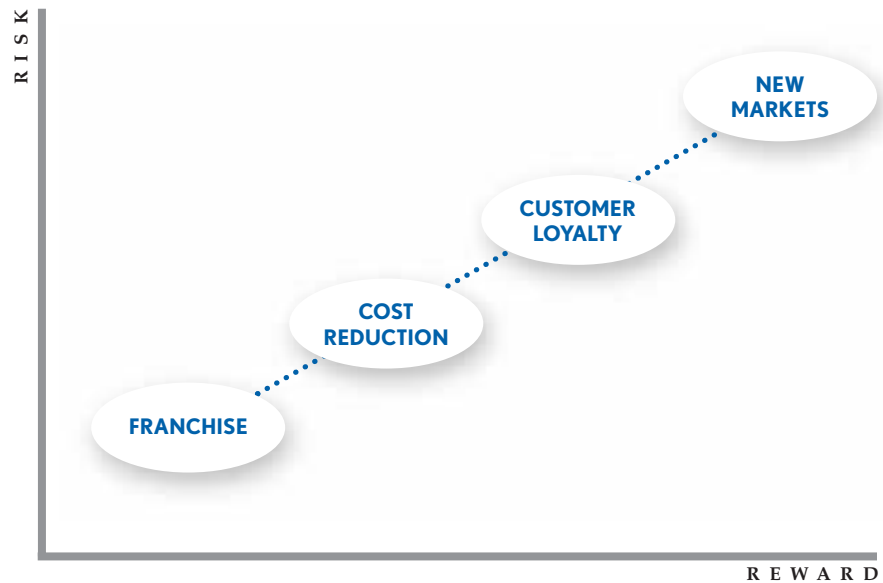
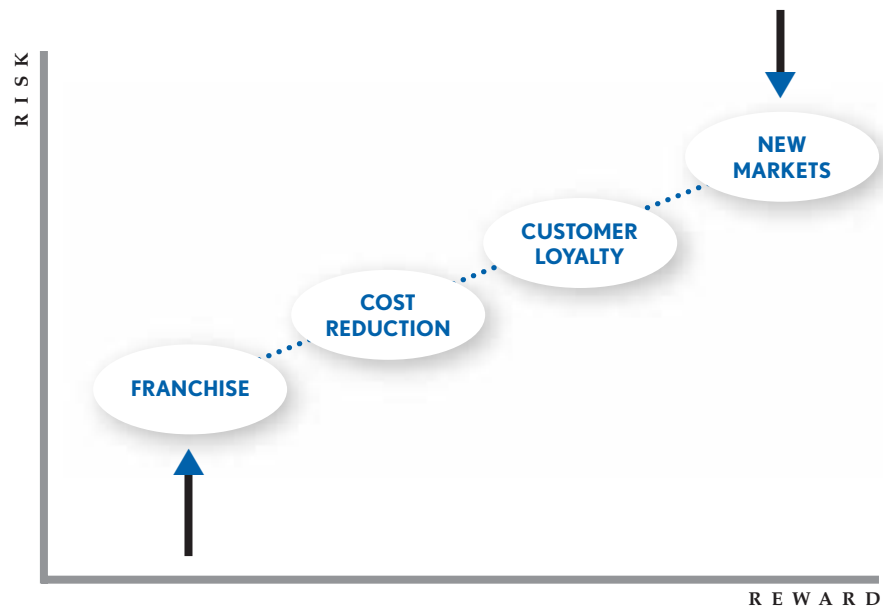


Figure 4. CHANGING RISKS AND REWARDS AS PRESSURE FOR SUSTAINABLE DEVELOPMENT GROWS



tuted—if not now, then fairly soon. So it is responding by developing products that will help customers reduce their electrical needs. These products would find very small niches today, but when the anticipated policy changes take place, the company will be well positioned in a dramatically expanding market.

These changing risk-reward relationships are making it more important than ever that companies begin to look for opportunities under all four drivers. The change is taking place slowly, and it tends to take place one issue at a time rather than being a broad “sustainability revolution”—but it is occurring. By taking on the four drivers in our business value model, companies can capitalize on some of the business opportunities in sustainable development.

These four drivers can be addressed in any sequence, either jointly or independently. A company might undertake one investment primarily to develop new markets, while another activity could be aimed at preserving the right to operate. Simply put, every company should be looking for opportunities to pursue each of the four drivers.

PROTECTING BUSINESS'S RIGHT TO OPERATE

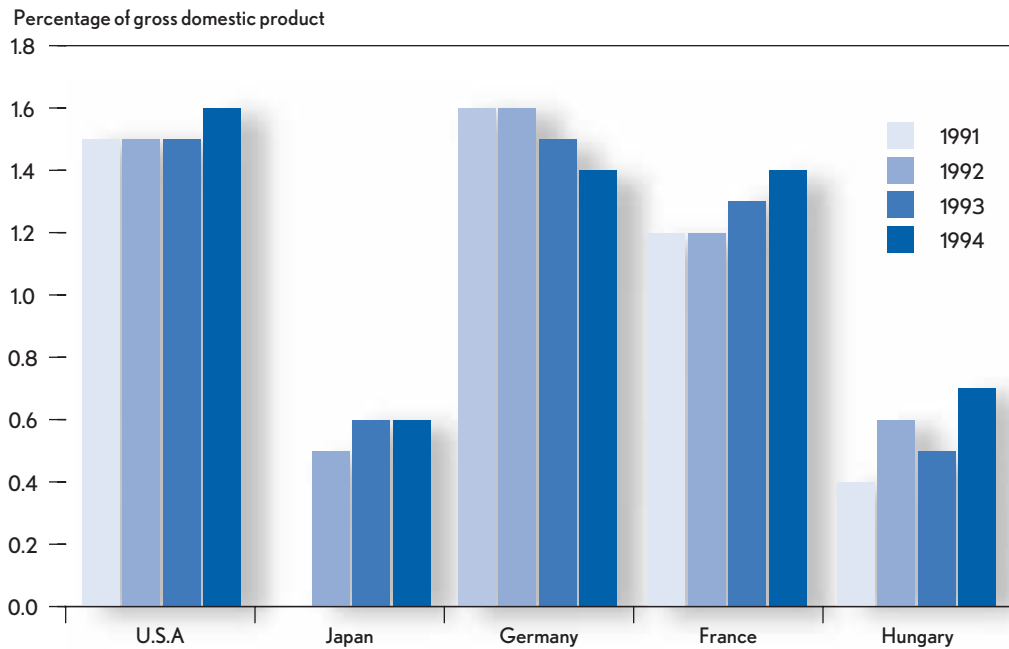
The first and most basic reason to protect the environment and worker health and safety is to comply with legal requirements or social pressure. Businesses that do not comply risk being delayed, closed, or censured. Beyond compliance, many companies believe the positive effect of having a reputation as a good corporate citizen brings enough benefit to justify the cost. Businesses with great reputations recruit the best people, enjoy privileged access to new markets, and generate greater trust from governments and civic leaders. Beyond this desirable outcome, many companies act in environmentally and socially responsible ways because of the personal values of key executives.

Although the behavior of ethical companies is commendable, and although the group seeking this sort of reputation now includes more than a few market leaders, the vast majority of hard investment in cleaner and safer processes is mandated by law. And these investments are significant. In the United States, investments to comply with

environmental and worker safety laws account for about 1.6 percent of gross national product, or over \$100 billion per year. (See Figure 5.)

The percentages are similar in other industrial countries (OECD, 1997, p. 268). Although industrializing and developing countries make much smaller investments in environmental protection as a percentage of the economy, in most places the trend is upward.

Figure 5. PUBLIC AND PRIVATE POLLUTION ABATEMENT AND CONTROL EXPENDITURE IN SELECTED COUNTRIES, 1991 - 94



Source: OECD, 1997.

In many industries, environmental and social investments have become a significant percentage of total capital invested—as high as 20 percent in extractive industries, the pulp and paper industry, and power generation, but much less in other manufacturing industries. Operating expenses are also significant—up to 10 percent of sales in some cases (Bonifant, 1994, pp. 41, 42).

Global companies operating in less regulated countries often make these same investments to establish leadership in the host country. Motorola's plant in Tianjin, China, for example, is as clean and modern as its plants in Scotland. The company is using state-of-the-art technology and sharing it with the Chinese government. In exchange, Motorola has one of the few wholly foreign-owned businesses in China and enjoys several billion dollars in domestic revenue. (See <http://www.motorola.com.cn/english/facts98/>)

Multinationals operate in excess of local standards in developing countries for defensive reasons as well. Allegations of exporting jobs

Box 3. LETTING NATURE ENHANCE THE RIGHT TO OPERATE

Georgia-Pacific and the Red-Cockaded Woodpecker

Since 1970, the red-cockaded woodpecker has been listed as an endangered species. As such, private landowners are prohibited from disturbing the woodpecker or its habitat. In 1993, Georgia-Pacific Corporation owned 4.2 million acres of timberland in the southeastern United States, some of which is habitat to the endangered woodpecker. Georgia-Pacific and the U.S. Fish and Wildlife Service entered into a voluntary agreement in 1993 to protect 40,000 acres of woodpecker habitat while allowing the extraction of timber on most of the land, which does not contain woodpecker habitat. This partnership was worked out through scientific study and bargaining on an accelerated basis, based on each participant's belief that the window of opportunity for proactive partnerships would close once the parties invested in litigation or regulatory mandates were implemented.

Mexicana de Cobre: Green Copper?

Few industries are farther from "greenness" than mining. Ironically, it is the large scale of mining's polluting activities that makes relatively small improvements in environmental performance in the industry translate into huge gains in overall pollution reduction. When well managed, these environmental improvements can also enhance the company's financial position. An example of this is Mexicana de Cobre, a copper mining company in northwestern Mexico. Its state-of-the-art sulfuric acid plant reduces dangerous sulfur dioxide emissions by at least 98 percent.

Though an expensive investment, the plant allows much of the sulfuric acid processed to be used internally at a significant cost savings. The rest is sold. Equally important to the company, the strategy of going beyond compliance to regulations has drastically reduced bureaucratic delays for Mexicana and helped avoid government suspensions and closures of operation that have cost several prominent competitors tens of millions of dollars. This in turn instills confidence in creditors who provide capital for continued expansion and environmental improvements.

Sources: Long and Arnold, 1995, p. 70; Cardenas and Pratt, 1998, p. 70.

and pollution, or of ruining sensitive ecosystems in countries with weak regulations, have dogged dozens of companies in the forest products, mining, chemical, automotive, and oil and gas industries. Many companies think it is cheaper in the long run to operate with one standard globally (Dowell, Hart, and Yeung, 1998, p. 9).

As regulations become more flexible, many companies are doing even more than they need to because they see possible bottom-line benefits from leadership (Bonifant, Arnold, and Long, 1995). Companies are investing in outreach to communities and civil society, in education and housing for workers and families, or in voluntary environmental projects to restore ecosystems, create wildlife sanctuaries, or reduce greenhouse gas emissions. (See Box 3.) Such projects often enhance the reputation and the market for these companies. They build connections to the community. They build trust. And they ensure the continued right to operate.

Although the costs of these investments are well tabulated, the benefits are difficult to quantify. Most accounting systems do not furnish data that could accurately justify these investments on a financial basis. Cost-driven companies usually restrict these investments to compliance with the law. As Michael Porter and Claas van der Linde write, "Instead of clinging to a per-

spective focused on regulatory compliance, companies need to ask questions such as, What are we wasting? And how could we enhance customer value?" (Porter and van der Linde, 1995, p. 130). Many companies are now doing just that.

REDUCING COSTS AND LIABILITIES

The second source of value to companies from environmental and social investments comes from reductions in costs and liabilities. Using material and energy more efficiently in operations has generated well-documented savings at hundreds of companies. Costs are reduced not only by avoiding expenses such as waste treatment and disposal but also by reducing inputs, especially raw materials, and by improving quality. These changes lower a company's environmental impact, which often also reduces its liability for toxic cleanup or civil suits.

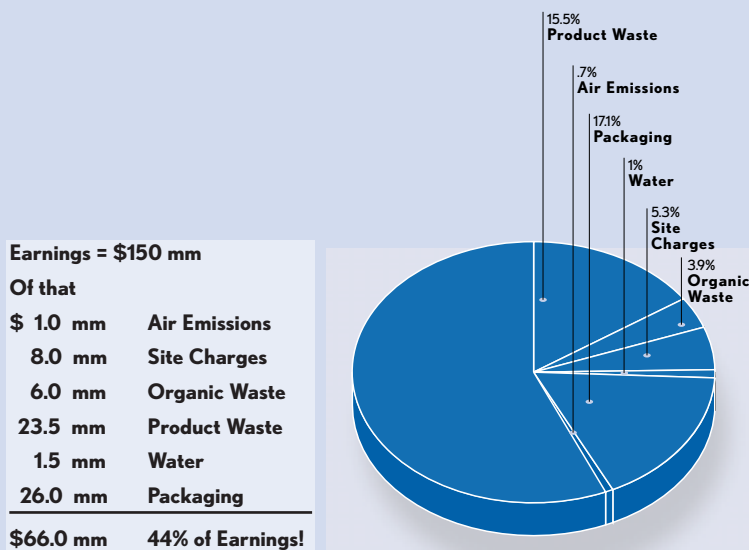
One semiconductor business we studied had annual chemical purchases of about \$2 billion against revenue of \$9 billion—almost 20 percent of sales. But 96 percent of the chemicals ended up in the waste stream. If this ratio were reduced to 50–50, the company would add \$1 billion to its bottom line.

Perhaps the best documented case of eco-efficiency in action is 3M's Pollution Prevention Pays program, which was launched in 1975 and which 3M claims had resulted in well over \$750 million in cost reductions by 1997. (See <http://www.mmm.com/profile/pressbox/envtaward.html>) Similarly, a Motorola plant in Scotland unearthed more than \$500,000 in annual savings when a team was looking for ways to reduce the environmental impact of a soldering line. The financial benefit was a surprise to the team, which thought the environmental improvements would cost extra money, not save hundreds of thousands. This achievement also pleased others; the Scottish plant was awarded the Scottish Environmental Award for Business '95 for Environmental Management (Internal communication, Motorola, 1995).

A Chilean metal finishing company emitted 1,000 liters of hazardous effluent for every ton of steel they galvanized. At that point, galvanizing cost \$600 per ton and delivery took three weeks. After

Box 4. WASTE PREVENTION AS CORPORATE CULTURE: DU PONT

When Du Pont decided to set a goal of zero injuries, accidents, and emissions, there was abundant skepticism within the company. Employees believed that zero was impossible and that by ignoring it, the goal would disappear. But the persistence of the champions for the zero goal has transformed the Du Pont culture into one that believes in and strives for zero. When the culture changed, a myriad of new ideas and tools emerged, such as the one in the following figure, which provides senior management with a snapshot of environmental costs as a percentage of profit. This figure suggests that achieving the zero goal would add nearly \$66 million to the bottom line for this company.



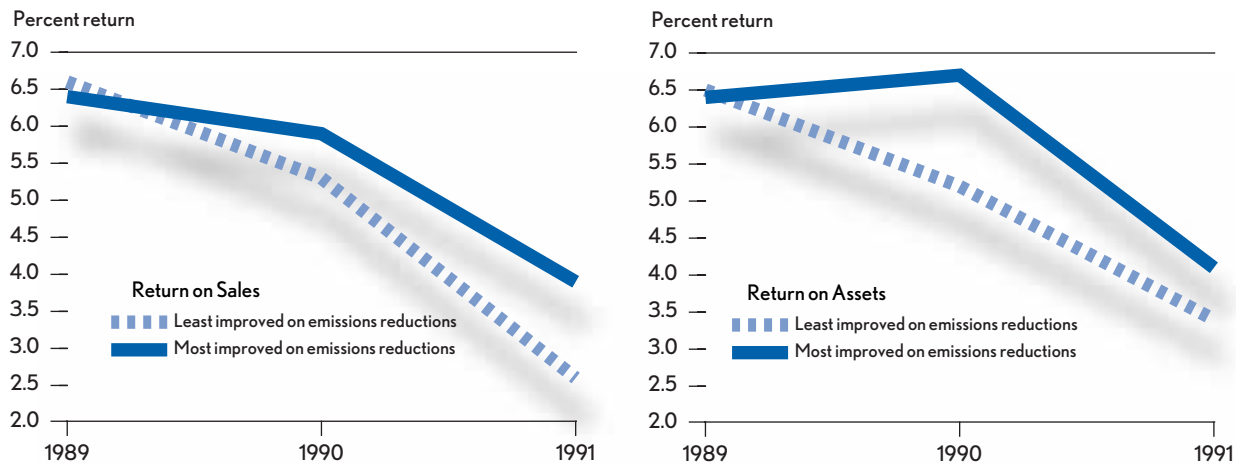
Source: Du Pont.

intensive analysis of their process and a major new investment, the company reduced effluent to 30 liters per ton of steel, the price to \$300 per ton, and delivery to three days. This single company transformed the entire galvanizing industry in Chile (Suarez, 1998).

Hundreds of other case studies have illustrated the business advantages of pollution prevention. Furthermore, business academics have applied their analytic tools to test the case. Hart and Ahuja found a significant positive relationship between reductions in Toxic Release Inventory (TRI) emissions and basic “bottom line” measures, such as returns on sales, assets, and equity (Hart and Ahuja, 1996, pp. 30–37). TRI is not a good indicator of environmental emissions performance because it measures only a small portion of a firm’s overall environmental impact and does not differentiate between emissions by toxicity, but the authors found that

even on this small front an emphasis on reducing waste could increase profitability. Noting that heavily polluting industries may find the biggest benefits from improving their process efficiency, the authors concluded that “the results also suggest that the marginal costs of reducing emissions seldom exceed marginal benefits. Indeed, although up-front investment may increase, the data suggest that a strategy to reduce emissions does not negatively affect the bottom line, even among those firms that have already drastically reduced emissions levels” (Hart and Ahuja, 1996, p. 36). (See also Box 4.)

Figure 6. RETURN ON SALES AND ASSETS FOR SAMPLE COMPANIES AS A FUNCTION OF EMISSIONS REDUCTIONS



Source: Hart and Ahuja, 1996.

Figure 6 provides some of Hart and Ahuja's results, which suggest that those companies most improved in TRI outperformed their lagging counterparts in returns on sales and assets, even during the economic downturn of the early 1990s.

Other evidence comes from the capital markets, where eco-efficiency funds are starting to attract attention. For instance, the Scudder-Storebrand Environmental Value Fund (EVF) uses an environmental performance screen in addition to its standard financial performance screen in portfolio management. (See Blumberg, Korsvold and Blum, 1997, pp. 22–25.) Using nine eco-efficiency criteria, the fund invests in best-in-class companies across industries. It is too soon to tell for sure what the results will be, but early returns are certainly impressive. As Figure 7 shows, a five-year backtest of the EVF methodology outperformed global equity indexes for the same period. Figure 8 indicates how the fund actually did in its first eight months: as predicted, it outperformed the market.

Figure 7. BACKTEST OF ENVIRONMENTAL FUND (EVF) COMPARED WITH GLOBAL EQUITY INDEXES, 1996

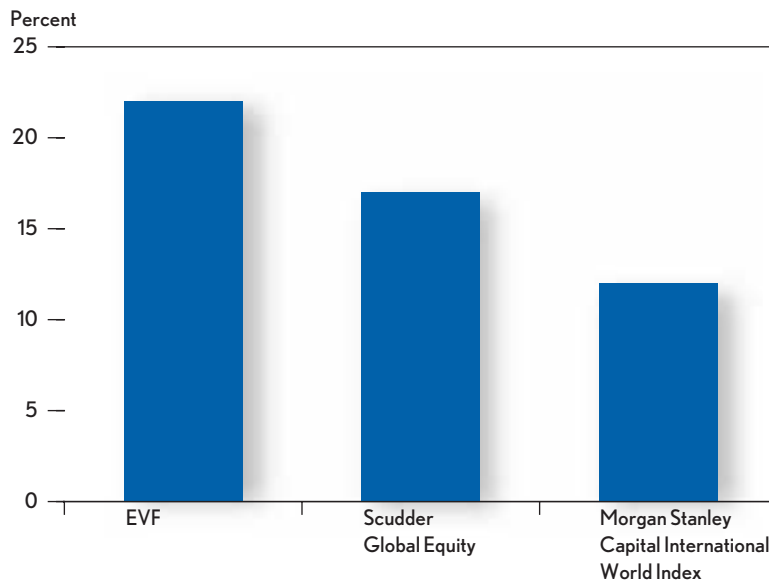
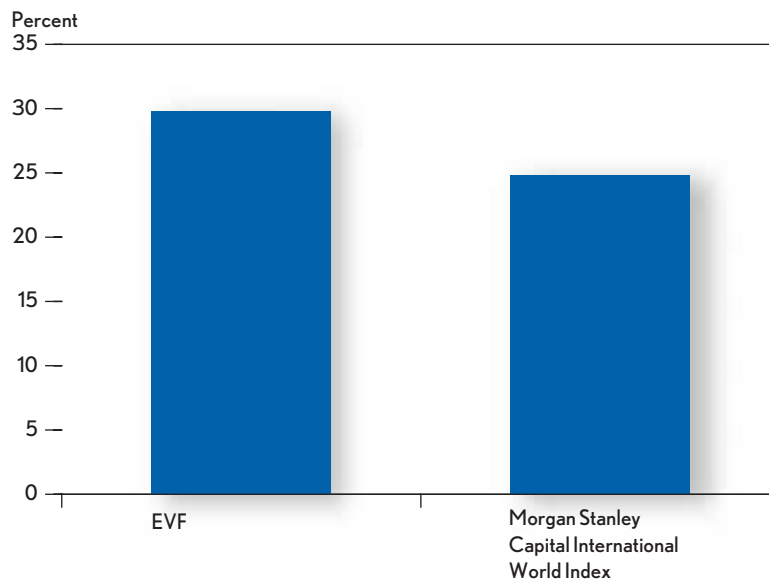


Figure 8. ACTUAL EVF COMPARED WITH GLOBAL EQUITY INDEX, 1996 - 97



Regardless of the business case for prevention, generating revenue will always be the paramount goal of most senior managers. Few chief executives attain their position by cutting costs. Most arrive there by growing revenue, which is where they put most of their energy. Moreover, while process efficiency benefits the company in the short term, it is the choices that a company makes about where to invest its capital, what products to provide, and where to sell them that are the most important determinants of long-term business success. These factors are also the most important determinants of the company's environmental and social impact. For these reasons, the full value of sustainable development will only be realized in companies that develop its full potential.

INCREASING CUSTOMER LOYALTY AND MARKET POSITION

When a business builds environmental benefit into products, it creates direct value to the customer. Of course, the benefit passes through to reduce the customer's environmental burden. More important, the

search for environmental benefit often yields nonenvironmental enhancements to product performance, cost, quality, safety, and serviceability. It can also create new ways of meeting the customer's needs, ways that are simpler and more knowledge-intensive. This approach has been called product stewardship, design for environment, or industrial ecology. None of these terms, however, captures the essential competitive fact that environmental improvement must be accompanied by superior value and competitive pricing.

Hundreds of companies have failed in attempts to introduce environmentally preferable products because they lost sight of customer value. Most customers will not make a meaningful sacrifice to protect the environment; they respond to price, performance, and convenience. When environmental concerns create performance trade-offs, they reduce the market appeal of a product. When environmental concerns are a driver for creating superior value, however, they will change the market. (See Box 5.)

The approaches described in this section are different ways of creating environmental benefits

Box 5. CUSTOMER VALUE FROM ENVIRONMENTAL BENEFIT

Washing Machines

Horizontal-axis washing machines use less water and energy than their vertical-axis competitors and require less detergent. More important for consumers, they clean clothes better because the clothes move in and out of the water. They are also smaller and can be raised off the floor for easy access. Recently introduced in the United States, horizontal-axis washers have already captured 2 percent of the market, and demand is such that manufacturers like Maytag are even instituting programs that pre-sell the washers to customers. Reports one Maytag representative, "sales of our Neptune front loader have been phenomenal." Washing machines are one of the largest household users of water and energy, and they are a major appliance market. For example, the U.S. market for washing machines is currently over 7 million units per year.

Wood Furniture, Floors, and Windows

Sustainable forest management protects forest ecosystems. More important for forest product companies, it can generate higher-quality wood because of greater stewardship through harvesting and milling. Managing a forest sustainably is not easy, however: it requires third-party certification and can raise costs. Downstream, manufacturers are using more of each tree to produce high-value products—so-called character wood. The growing appeal of knots, grain, and sap is raising the commercial value of lumber. But it is more difficult to mill character wood than higher-grade wood.

Mortgage Insurance

Location-efficient mortgages (LEMs) reward homeowners who shorten their commute by giving them lower mortgage rates. Mortgage applicants who demonstrate their proximity to work are believed to have more disposable income for servicing a mortgage. One study of San Francisco estimated that the household transportation costs savings of such a system could be as much as \$250 per month. LEMs provide the homeowner with an incentive to locate close to work, which reduces emissions from transportation and also benefits the lender by reducing the risk associated with the mortgage—when transportation is a significant portion of a household's expenses, any hike in gasoline prices could threaten the ability to pay off the mortgage.

Sources: Maytag from <http://www.happi.com/special/janma981.htm>; <http://www.ammagazine.com/pdf/amchart2.pdf>; transport in San Francisco from David Goldstein, "Making Housing More Affordable: Correcting Misplaced Incentives in the Lending System," NRDC, http://www.smartgrowth.org/library/housing_afford_goldstein.html.

that also create customer value. They are presented in ascending order of difficulty and investment. Each begins with the recognition that most businesses inadvertently create environmental problems for their customers. Most products consume resources, create waste, and must be discarded. The environmental burden is never the purpose of the product; it is a byproduct of using it. The agricultural chemicals industry illustrates this phenomenon well. Its products allow customers to produce life and nutriment. At the same time, use of the products toxifies ecosystems and contaminates adjacent water bodies. The challenge for that industry, aggressively pursued by agricultural life sciences companies, is to continue the life-giving stream of products and eliminate the negative environmental impacts without creating new and perhaps bigger environmental problems.

Service Add-Ons

Many companies add service elements to help their customers manage the environmental impact of their products. 3M provides environmental regulatory information to help customers in the furniture industry navigate the maze of requirements that they confront. (See <http://www.mmm.com/profile/envt/manage.html>) These firms are usually small and cannot afford the resources to learn the rules without help, so 3M's service saves them time and money. In the same way, Kodak Environmental Services helps photo processors manage their environmental regulatory and technical issues. It helps customers recycle and control the fairly toxic array of chemicals used in film processing (Eastman Kodak Company, 1997, pp. 52–53). Du Pont's sulfur products business offers acid handling and recovery services to its customers. (See <http://www.dupont.com/sulfurproducts/index.html>) Some customers never actually own or handle the materials themselves and instead contract for Du Pont's expertise, which is a distinct competitive advantage for Du Pont. All these services make it more costly for customers to switch to competitors (switching costs), especially when the service is not standard in the industry. They also generate stronger partnership between the supplier and the customer.

Product Modification

Most product changes prompted by environmental concerns are modifications. (See Box 6.) Relatively minor alterations require fewer manufacturing changes, no change in customer handling or use, and no change in selling approach. The authority for such modifications may reside relatively low in an organization. For these reasons, we see large numbers of fairly small changes. Major modifications require new process equipment, new customer application equipment, different selling approaches, and approval by senior management. These larger changes are riskier and consequently rarer. In most cases, they are forced on a company by external forces such as regulations, negative press, or customer demands.

In response to regulations, most paint formulators have reformulated their coatings to lessen the amount of volatile compounds. They have substituted water-based solvents, made the coatings more viscous, and produced powder paints. In the early 1990s these environmental requirements were the single largest driver of technical change in the paint industry, and they altered the competitive landscape.

Box 6. A BUSINESS CASE FOR PRODUCT MODIFICATION

Design for recycling can also lower costs. Dell Computers has converted one of its personal computer lines to a recyclable chassis, and it has established partnerships with several resale and recycling companies to offer incentives for customers to return old computers (whether or not they are Dells). The design changes have actually lowered costs by simplifying manufacturing.

Redesigned products can increase customer loyalty and save costs. SC Johnson Wax has developed a RAID Ant'n Roach insecticide that has half the volatile organic compound (VOC) component of similar products. This development saves 15 million pounds of VOC emissions across the United States and benefits customers and wholesalers through its decreased residue, improved smell, and new nonflammability. It also saves the company \$2 million annually in reduced manufacturing costs.

Customers prefer energy-efficient products. Electrolux's 1996 environmental annual report states that its white goods with the best environmental records accounted for 5 percent of total European sales but 8 percent of gross margins. These products not only save consumers electricity, they also generate 3.8 percent higher profits than standard products.

Advanced design technology can improve product performance and lower costs. Norway-based Kvaerner's Ship of the Future will have a Ship Management System that improves maneuvering and control of specialist ships, so that the hull and power plants can be greatly simplified. Energy requirements will be reduced 20 percent, maneuverability will be enhanced, and Kvaerner will enjoy significant construction cost reductions.

Existing products can also be made more environmentally friendly. Philips Sound and Vision has developed a 14-inch compact "Green TV" that eliminates almost all hazardous materials and reduces lifetime energy consumption by 40 percent, mass by 11 percent, and disposal costs by more than 30 percent. It also uses 30 percent fewer components, with corresponding savings for Philips.

Sources: "Dell Converts Computer Line to Recyclable Chassis," 1996; Johnson Wax, Kvaerner, and Philips from DeSimone and Popoff, 1997, pp. 187, 190, and 198; "Electrolux Says Aggressive Environmental Strategy Has Strengthened Its Market Position," 1997.

The winners have made changes that reduce cost, enhance coating performance, and help their customers make the necessary changes to use the new technologies (Bonifant, 1994, pp. 189–250).

After a troublesome start with disposable cameras, Kodak launched a single-use camera that the customer returns for recycling. The materials in these cameras are reused up to eight times before disposal, making this one of the most recycled products in commerce. Kodak saves money for materials and forms a stronger partnership with its photo processors. The single-use camera category is the most rapidly growing segment of the consumer film industry. The success of this product was critical to Kodak's financial health. Hence these relatively small changes were actually huge in the minds of senior management (Arnold and Day 1997).

As in these two cases, the motivation for changing a product for environmental reasons often comes from outside the company. The result usually adds value to customers and to the bottom line. We believe that both the environment and the company can win with this modification approach. The challenge for change makers is to point out this opportunity. The value is there but is not perceived or pursued.

From Product to Offering

One of the most powerful ways to reduce the environmental impact of products is to separate them from the function they are intended to serve. In essence, every business is a service business because products are only as valuable as the service they deliver. Cars, plywood, and fast food are simply conveyors of transport, structure, and calories. If these can be delivered with different conveyors—ones that have less environmental impact, lower cost, or higher performance—then both the environment and the business win. This transition from producing particular products to offering services is much broader than a service add-on. Unlike service add-ons, offerings require product changes. A service focus can be better for the environment because it sells satisfaction, not product. It can be better for the business because it encourages innovative thinking about how to meet customer needs.

This approach is gaining momentum in pockets of industry; to those in consumer businesses, it is not that new a concept. Chad Holli-

day, chief executive officer of Du Pont, recently noted that his company could achieve tenfold resource productivity improvements by changing its business model. He referred to Du Pont's automotive business as needing to move from a company that produces things for General Motors to one that delivers offerings to the personal transport industry (Personal communication). Such an orientation would allow an electric utility to deliver microturbines for industrial or even residential customers. It would let a nylon manufacturer become a home, automobile, or apparel designer. Although the conceptual difference between product and offering is small, the difference in business approach and in environmental impact could be enormous.

British Petroleum and Royal Dutch Shell are two of the biggest investors in solar technology in the world. For each, the investment represents the recognition that they are in the energy business, not the oil and gas business. Although their investments are small relative to their petroleum assets, the average growth of the solar industry since 1990 has been 16 percent, compared with less than 1.4 percent average growth for the oil industry in the same period. (See <http://www.worldwatch.org/alerts/pr98716.html>) Both companies project much higher growth for their solar businesses than their petroleum businesses. As energy services companies, these two could be free to invest heavily in renewable energy and energy delivery systems.

From Selling to Leasing

When a company changes its orientation from product to offering, the importance of the product in the business relationship diminishes. One conclusion many companies are reaching is that leasing is a more suitable selling strategy than purchase. If customers focus not on the product but on the service it provides, they have no need to own it. In effect, the installed base of product becomes an asset to the supplier. This works especially well with high-cost physical products such as office equipment, vehicles, and even carpets. Leasing has the additional benefit of freeing up the customers' capital for internal investments with higher returns and greater strategic value. Xerox's Asset Recycle Management (ARM) program is a widely cited example of the leasing-not-selling concept. (See Figure 9.) Through ARM, Xerox

recovers copiers from the customer site and reconditions the machine infrastructure, which accounts for most of the material in the machine but very little of the value. Xerox can turn copiers around through refurbishment more cheaply than it could make entirely new machines. In 1994, simply reclaiming and reusing toner cartridges saved Xerox around \$2 million (WRI, 1998, p. 168).

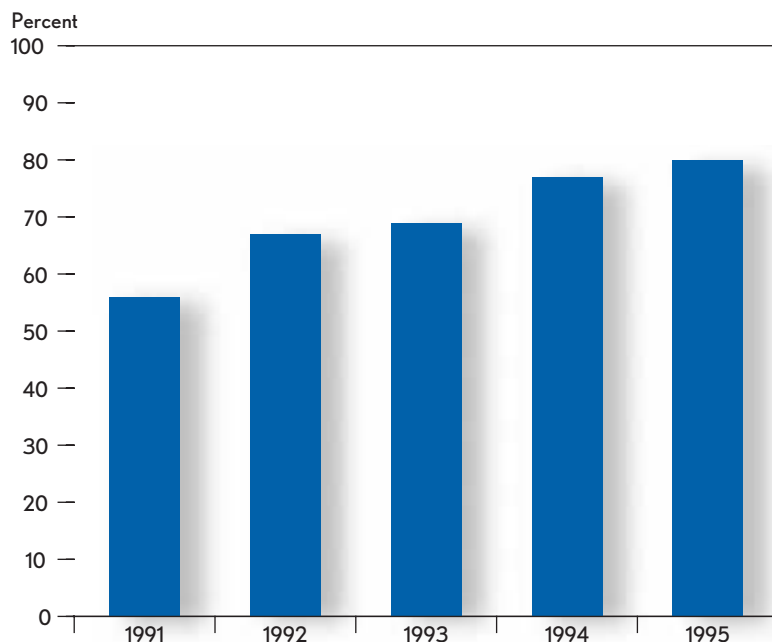
Moving Toward the Customer

The evolution from product to offering requires a company to know its customers well. The business benefit of this intimacy can be dramatic. Consider companies that sell paint to the automobile industry. As long as the customer is buying volumes of paint—the physical product—the supplier's incentive is to sell more paint. Services that help the customer become more efficient in applying paint will lead to lower sales. If the purchasing relationship is changed, however, so that the supplier

is paid not for gallons of paint but for the number of vehicles painted, then the incentive to reduce material flow through the system increases. The supplier has an interest in reducing paint use through thinner coatings and higher transfer efficiency. The overall business system becomes more efficient, and everyone benefits.

As described earlier, Du Pont and Ford in the United Kingdom have adopted this concept. Du Pont now operates Ford's paint shops. Du Pont knows paint and can use its chemistry expertise to develop paints with less material and lower emissions. It can make the process more efficient, and the cost savings are shared between the two companies. As a result, Du Pont's share of

Figure 9. PERCENTAGE OF SOLID WASTE RECYCLED BY XEROX



Source: Xerox.

the automotive painting market takes a leap, its relationship to the customer deepens, and it learns about the competition from buying competitive products to use in the paint operation. It learns about competitors' selling approaches, negotiating tactics, and pricing strategies. Du Pont owns the customer interface and controls all the competitive products that enter Ford's paint shop (*Green Business Letter*, 1997, p. 7).

Moving toward the customer is creating new competitive dynamics in many industries. Electric utilities are competing hotly over access to residential customers. "Owning" that interface gives a company a channel to sell other things, such as cable television. Companies in every industry are using the Internet to bypass the distribution channel and market directly. This reduces costs by eliminating middlemen and allows a company to learn about a customer's needs directly. Many of these competitive dynamics are not directly related to the environment. But the environment stands to benefit from this shortening of value chains, that is, the number of transactions between a producer and its customers.

MARKET DEVELOPMENT

What will be "the next big thing"? Few could have predicted 20 or more years ago the role of personal computers in today's economy. Nevertheless, it is possible to look that far into the future and predict "market discontinuities"—areas where major trends are in conflict, creating latent demand for new technological solutions. For personal computers, growth in information availability and decentralized decisionmaking provided fertile ground for the new technology. At present, we believe that research into "sustainable development" is uncovering significant market discontinuities—opportunities where the need for new technologies and market development is clear.

The fourth source of business value from our agenda for sustainable development is driven by these market discontinuities. Companies that adopt this agenda will use it to develop new markets for entirely different streams of technology and services that substitute knowledge for material, restore ecosystems, and connect people. Every company

should assess its technical and business capability for these new markets. It will produce different ways to meet needs for energy, fiber, food, and health. We will see more of the world connected to the market economy. These opportunities are currently small but exciting. They create great meaning and fulfillment for people who participate in them. This section looks at just three areas that demonstrate tremendous opportunity for businesses that take the lead in market development.

Protein

Currently, nearly 1 billion people rely on fish as a primary source of protein, and yet global fisheries are in major decline (Brown and others, 1998, p. 71). (*See Figure 10.*) As world population continues to grow and fisheries become more depleted, new sources of inexpensive and environmentally benign protein will be needed. Consequently, aquaculture (fish farming) is entering a boom. From 1984 to 1994, world aquaculture production more than doubled, led mostly by Asian producers (WRI, 1998, p. 158). Several major multinational companies are looking into aquaculture. Although current aquaculture practices often have serious environmental problems, existing fish farmers are also trying to reduce their harm to ecosystems, recognizing that they are well positioned to take advantage of any shortages of protein.

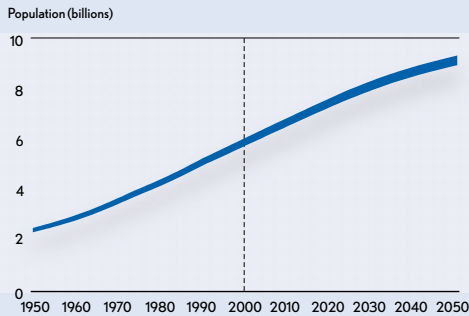
Atmospheric Carbon and Energy

It is increasingly clear that we must make major reductions in our emissions of carbon into the atmosphere. Yet the global demand for energy is expected to climb 2 percent a year over the next 15 years, and fossil fuels supply about 90 percent of the world's commercial energy (WRI, 1998, p. 170). Even keeping carbon emissions roughly at today's level would result in a doubling of the preindustrial atmospheric level of carbon dioxide by the end of the twenty-first century, with still more rises coming.

The technologies to disconnect energy production from carbon emissions are already available through renewable sources such as water, wind, and sun. Prices for these alternatives are currently too high. Yet a glimpse at the difference between where we need to be for

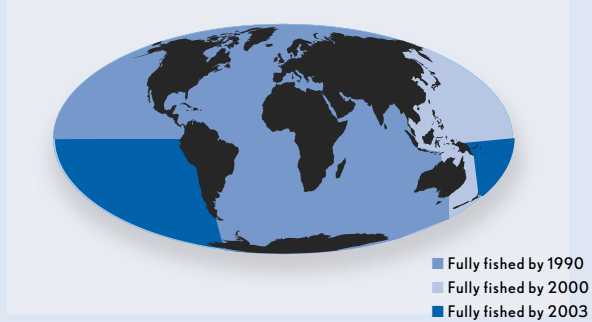
WHERE WILL WE FIND PROTEIN?

Figure 10. PROJECTED RISE IN GLOBAL POPULATION...



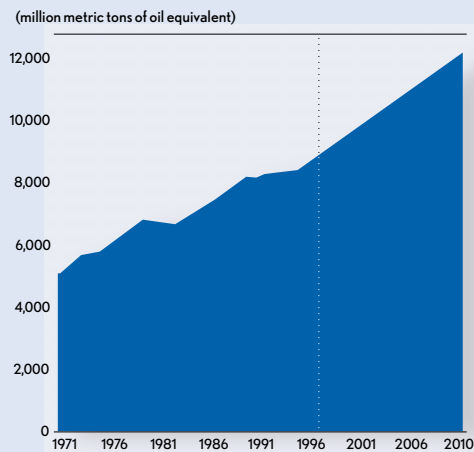
Source: Adapted from WRI, 1998.

...AND OVEREXPLOITATION OF MARINE FISHERIES



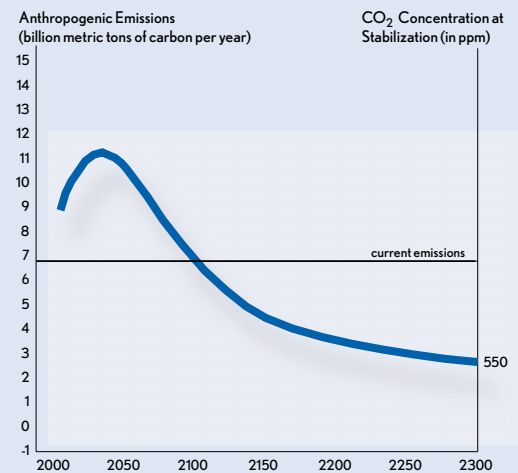
HOW WILL WE MEET ENERGY NEEDS?

Figure 11. PROJECTED GROWTH IN ENERGY USE...



Source: Adapted from WRI, 1998.

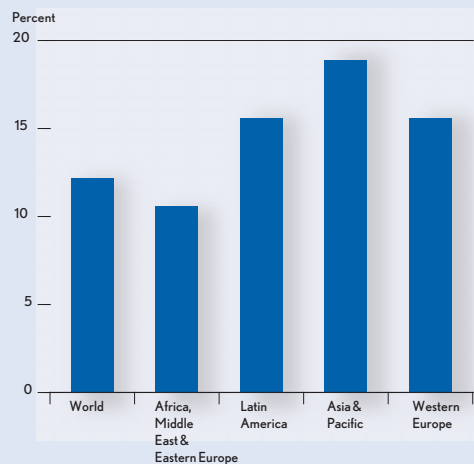
...AND REQUIRED DROP IN CO₂ EMISSIONS*



*If stabilization is to occur at double the preindustrial level.

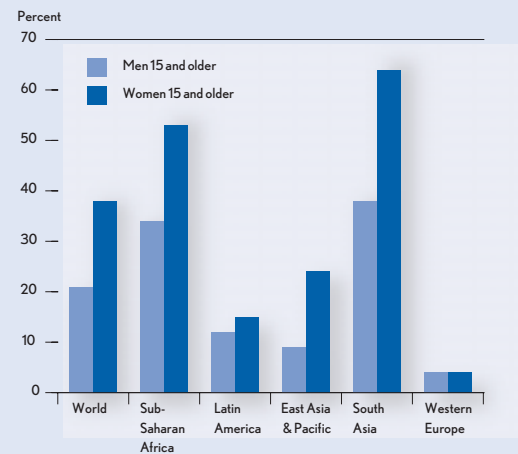
WHO WILL USE NEW TECHNOLOGIES?

Figure 12. AVERAGE ANNUAL GROWTH OF INFORMATION TECHNOLOGY MARKET, 1985-95...



Source: World Bank, 1998a, pp. 58 and 193.

...AND ADULT ILLITERACY, 1995



climate protection and where business-as-usual will put us suggests tremendous opportunity for companies that can develop and commercialize these alternatives. (See Figure 11.)

Connectivity and Education

The world is becoming ever more connected. Global trade is on the rise, the Internet is growing by leaps and bounds, and CNN can be seen in every corner of the globe. Market leaders such as Motorola and Microsoft are busy expanding around the world, betting not only that connectivity will continue to rise, but that new markets will generate tremendous demand for their products. After all, until recent setbacks,

China's economy had been growing at double-digit rates (World Bank, 1998, p. 176). India may soon have the largest middle class of any country in the world, and privatization and investment are driving growth in many other regions (Hammond, 1998, p. 173).

Nevertheless, a significant portion of these potential markets remain out of reach because the population is undereducated. Literacy is rising worldwide, but not fast enough to fuel sustained growth of telecommunications use. (See Figure 12.) In the developing and least developed countries, there may be a small latent market for such technology in the immediate future, but in order to continue expanding, suppliers will increasingly have to spend money on training and product design to compensate for users' lack of education. Companies that address training and educational

Box 7. CREATING NEW MARKETS BY STRENGTHENING SOCIAL CAPITAL: BANGLADESH

Bangladesh's vast population is a huge untapped consumer base, but widespread poverty, inadequate basic infrastructure, and weak governance unfortunately mean that the real buying power of the populace remains low and their needs go unfulfilled. Phone lines are rare in Bangladesh, which means that communication is sporadic and inefficient. This country of 120 million people has only 500,000 phones. This in turn hinders the local economy: farmers do not receive accurate information, ideas are not transferred, and small businesses cannot control inventories or identify potential customers at any distance.

One local company with international investors, however, has found a way to both tap into latent consumer needs and strengthen the market's potential by investing in communications infrastructure. Although it is a non-profit organization, Grameen-Phone, in partnership with several international investors, is building cellular relay towers around the country and has begun selling cellular phones to remote villages. In each village, one person is contracted to be the owner and operator of the cellular phone. The operator is charged a per-minute rate and in turn charges villagers a higher rate to use the phone. Both rates are low (about 8¢ a minute for the operator, 10¢ for the customer), which makes telephone communication affordable and available for the first time. Grameen-Phone benefits from the usage fees, plans to expand the service into new markets, and can use this connection to a large untapped populace to promote its banking and other services. The company plans to distribute 70,000 phones over six years.

Source: Saeed, 1997.

needs or otherwise bridge the gap between high technology and the developing world will find themselves in the lead. (See Box 7.)

INTEGRATING THE AGENDA WITH THE FOUR BUSINESS DRIVERS

Table 2 illustrates the relationship between the agenda for sustainable development and the four business drivers. Any company can find opportunity in any of the three areas of sustainable development driven by any source of value, as we have highlighted by using three very different industries as hypothetical examples. The result is at least 12 ways to create value from sustainable development.

**Table 2. THE AGENDA FOR SUSTAINABLE
DEVELOPMENT IN RELATION TO
FOUR BUSINESS DRIVERS**

Agenda	Example	Right to Operate	Cost Reduction	Customer Loyalty	Market Development
Doing more with less	Telecommunications	Establishing “beyond compliance” guidelines to streamline permitting processes	Material accounting to identify cost reduction opportunities	Making products easy to upgrade, so customers do not need to replace equipment as often	Looking for opportunities to compete directly with transportation technologies
Getting revenue from nature	Forest products	Preserving biodiversity “hot spots” within forest holdings to preempt intervention	Recovering fallow land for fast-growing tree plantations to take pressure off natural forest	Educating consumers about the value of virgin ecosystems and ways to reduce demand for wood products	Setting aside forest holdings to sequester carbon, control flooding, and enhance water quality, while selling the services to downstream municipalities and industries
Connecting with communities	Retail services	Establishing relationships with stakeholders and opponents to avoid controversies that could hurt sales	Partnering with suppliers and nongovernmental organizations (NGOs) to reduce waste throughout the life cycle of products	Sponsoring product takeback days at retail locations in partnership with the community and with appliance and computer manufacturers	Advancing microcredit to potential suppliers in developing regions to facilitate market entry



4 . M A N A G E M E N T S U C C E S S F A C T O R S

A growing number of business people have recognized the opportunities in sustainable development and see the business value of such investments. These individuals are striving to spread their understanding throughout their companies and to develop the organizational commitment and capability to take on approaches such as the ones outlined here. Nevertheless, the collective experience of companies in this process is not extensive. Most players, including consultants, are relatively new to the game. The individuals working in their companies and associations are creating the future. There is no clear roadmap, and limited understanding of the destination. This ambiguity makes the organizational challenge quite daunting.

We have distilled our 10 years of experience in observing and helping companies into six success factors. Few companies are active on the whole array, but many are working on parts. There is no required order to the process, although there are some natural tendencies. Most companies begin with leadership, external engagement, and measurement.

The six factors are qualitative and interlinked. We have highlighted the importance of each and given some texture to show how the issue unfolds in particular companies. At the end of the section, we have included a number of questions for self-assessment, to help a business see where it stands relative to each of the six factors. Where it goes from there is up to the change agents.

WHAT MAKES FOR SUCCESS?

Any company can compare itself with its competition in these areas:

- Having committed leadership
- Being engaged externally
- Measuring environmental and social progress
- Developing strategic intent
- Shortening the value chain
- Designing an adaptive culture.

LEADERSHIP: COMMITMENT ACROSS THE COMPANY

Building a business commitment to sustainable development requires new technology, products, and services; changes in values and behavior; and new relationships with customers and suppliers. Such a commitment must attract leadership at all levels and in all functions for meaningful change to occur. Who is leading the way?

In most companies, the strongest appeals for sustainable development come from the environment, health, and safety staff, but they need help. These people can be impassioned advocates, but meaningful change requires support and commitment across the company. In technology-based companies, research and development must be a driver. In marketing-driven companies, the marketing leadership must be on board. In financially driven companies, the chief financial officer must be supportive. In most companies, support from all these areas is crucial.

We have seen that there is usually support for environmental change from the operations areas. Manufacturing, distribution, and retail sales have the most visible environmental footprint, and they often deal with vigilant communities or customers on environmental issues. They also have the most knowledge about incremental process or product improvements. This relationship between environment and operations can minimize waste and reduce cost through process efficiency.

In a few companies significant change is being driven by the chairman or chief executive. The companies that belong to the World Business Council for Sustainable Development, a global CEO-level association, have taken public leadership on sustainability issues. The progress of individual companies in the group varies, however. In the United States, the most ambitious and visible CEO commitments have come from Interface and Monsanto. There is no more important advocate in a company, but CEOs cannot do it without the commitment of their business units. Moreover, such top-down change is vulnerable to leadership transitions.

The most powerful pattern of change, and unfortunately a much rarer one, comes with the support of a business unit manager with authority over capital investment requests, product development, and marketing. As the executive with bottom-line responsibility for the

profit and loss of a business, she or he has the authority, the resources, and usually the credibility to shift the business.

EXTERNAL ENGAGEMENT: LEARNING FROM DIFFERENT PERSPECTIVES

Companies that aspire to sustainable development recognize that they need help to answer many essential questions, such as where discontinuities are emerging, which technology will become superior, who the key players will be, and what government policy may dictate. The usual uncertainty of business is magnified by the rapid and unpredictable changes in the technology, scientific understanding, and politics of the Information Age. The most engaged companies are looking outside themselves—to customers, potential new entrants, advocates, soothsayers, and politicians for advice and forecasts of what the future may hold. Identification of emerging needs and markets evolves from this external intelligence, combined with internal expertise and experimentation.

Many companies get stakeholders to manage potential risks before they become full-blown—to help avoid incidents like the *Exxon Valdez* spill or the Union Carbide accident in Bhopal, India. This is a useful exercise, but some companies have discovered that external engagement can also provide insight that can lead to new products, new markets, and growth. (See Box 8.) They

Box 8. TEMPLATE FOR GETTING CONNECTED

Develop the business case for purposeful connections. Find stories that show the strategic or financial value of external associations. The value will include reduction of risk in times of change, identification of new technologies or markets, and acceleration of time to market and of market entry, among others. Use the business case to develop internal consensus for an external business orientation.

Inventory and evaluate existing associations and partnerships. Every business has some associations. Identify these and assess their value.

Identify important gaps, vulnerabilities, and opportunities. Start a creative process of possibility development, where people imagine the potential value of real or hypothetical associations. Look for areas of risk that associations may mitigate. Look for areas where growth could be accelerated. Look for areas where the business can contribute to the development of social cohesion in communities where it works.

Evaluate potential partners, associations, and memberships. Develop a list of potential candidates for association. Include membership organizations, universities, non-governmental organizations (NGOs), other companies, religious groups, and so on. Be exhaustive. Interview them. Develop a business case for each promising candidate.

Establish a small number of associations or partnerships. Engage a few groups that have the clearest chance of success, with the clearest business value. Make sure the experience goes well. Share the learning and the value. Do it again.

recognize that answers will not come from superior engineering alone; they will emerge from new business partnerships and knowledge sources. For instance, Monsanto has consulted hundreds of outsiders in its recent quest for sustainability. Interface has developed a “dream team” of gurus to advise it on the path to sustainability (Interface, Inc., 1997, p. 13). And British Petroleum is forming partnerships with environmental groups to understand how best to respond to global warming.

MEASUREMENT: MAKING BETTER-INFORMED DECISIONS

One of the greatest obstacles to the expansion of sustainable development in business is the lack of clarity about exactly what it is, the difficulty of designing measures for it, and the resulting difficulty in rewarding behavior that contributes to it. Measurements are critical for at least three reasons. The first is to monitor environmental and social progress: Is our environmental footprint shrinking? How are we viewed by our communities and our employees?

Second, developing new measurements that are consistent with traditional business and investment ones is essential in order to engage senior management. If a business is traditionally measured by shareholder value added or return on assets, the new measurements need to communicate how environmental and social investments enhance those goals.

Finally, measurement is critical for reporting. Communicating clear and consistent numbers of performance to internal stakeholders (employees) and external stakeholders is essential to building trust and connections to communities.

Measurements for reporting environmental performance have been developed and implemented by a handful of companies. (See Ditz and others, 1995.) Voluntary reporting of environmental performance is done by several U.S. companies, many more in Europe, and very few elsewhere in the world. These reports are difficult to compare because the companies measure different things under different assumptions. The absence of standards for these measurements has created a fairly

incomprehensible set of numbers. Consequently, eco-efficiency investment funds, industrial companies, environmental consultants, and a few environmental groups (most visibly the Coalition for Environmentally Responsible Economies, CERES) are pushing for standard reporting in a common format. (See Box 9.)

Social measurements are even less common. There are few social audit reports, and measurement of social progress is less precise than environmental progress. This is a research area that demands immediate attention (Ranganathan, 1998).

The most difficult yet perhaps most important measurement challenge is the creation of a financial measurement that is built around the firm's overall environmental and social impact. Despite the recent proliferation of measurement techniques and tools, companies continue to use a few very simple financial yardsticks to evaluate performance. Whether it is return on capital, cash flow, or a similar measure, these remain the primary decisionmaking tools for most firms. It is imperative that some way of incorporating financial, environmental, and social measures—representing “return on the environment,” for instance—be developed and used by companies as one of their primary performance indicators. Such a figure would have to correlate positively to standard indicators, such as return on investment, and would provide value by yielding more accurate insights on the impact of environmental issues on financial profitability.

Box 9. FOUR KEY CATEGORIES FOR MEASURING ENVIRONMENTAL PERFORMANCE

Materials Use: Quantities and types of materials used. This environmental performance indicator (EPI) tracks resource inputs, distinguishing their composition and source.

Energy Consumption: Quantities and types of energy used or generated. This EPI, the energy analog to materials use, also differentiates between types.

Nonproduct Output: Quantities and types of waste created before recycling, treatment, or disposal. This EPI distinguishes production efficiency from end-of-pipe pollution control.

Pollutant Releases: Quantities and types of pollutants released to air, water, and land. This EPI includes toxic chemicals, greenhouse gases, solid wastes, and other pollutants.

Source: Ditz and Ranganathan, 1997.

STRATEGIC INTENT: FROM STEWARDSHIP TO STRATEGY

Thousands of companies all over the world have articulated environmental policies in the last 10 years, and many more did so before that. ISO 14000, an international certification that may become essential for exporting to most countries, requires a written environmental policy. But these policies are focused almost by definition at the back end of the business, where the waste emerges. A stated environmental policy is virtually irrelevant to the strategic choices a business makes, such as where to invest capital, what service or product to provide, or what

Table 3. THREE SCHOOLS OF CORPORATE SUSTAINABILITY

Dimension	Sustainability Harangue	Sustainability Tools	Sustainability Integration
Noticeable characteristics	Exhortation, lots of talk about “environment” and “sustainability”; generally a marketing campaign intended to create buying signals without incurring the expense of fundamental changes.	Introduction of specific tools, such as Life Cycle Analysis, Design for the Environment, and Environmental Accounting.	Serious review of all elements of the organization; efforts to involve suppliers and customers.
Rationale	Management may believe that the firm’s environmental performance is better than generally known or may be creating a smokescreen, saying, for example, “everybody’s doing it,” “it’s the thing to do these days.”	Valued customers insist upon implementation of a team program, or competitors have introduced successful programs, creating a “bandwagon” effect.	Systematic effort to improve earnings through differentiation based on environmental and/or social performance.
Responsibility for performance	Unchanged; specific functions within organization assigned responsibility for environmental performance or “sustainability.”	Lower-level members of organization regardless of function.	Shared responsibility; senior management accepts responsibility for creating a culture encouraging superior environmental and/or social performance.
Structural changes	None; the organization remains unchanged.	Incremental changes within functional areas or processes.	Dramatic changes integrating functions within the organization and involving customers and suppliers in the total production process.
Representative employee attitudes and behaviors	Just a fad: “the flavor of the month,” “this too shall pass”; smart employees learn to keep their heads down; they talk about the environment when expected to but know that business continues as usual.	“It’s a nice idea, too bad management isn’t really serious about it.” Clever employees participate in seminars and use appropriate tools to fix obvious flaws in their areas of responsibility but are careful not to rock the boat.	“At last, we’ve got a chance to do it right.” Committed employees study the environmental and social mission of the firm, actively search for opportunities to improve performance across the organization, challenge conventional wisdom, and seek to involve customers and suppliers.
Role of the environmental, health and safety professional	Policeman, watchdog, permit filer.	Resident expert, advisor.	Strategic leader, change agent.

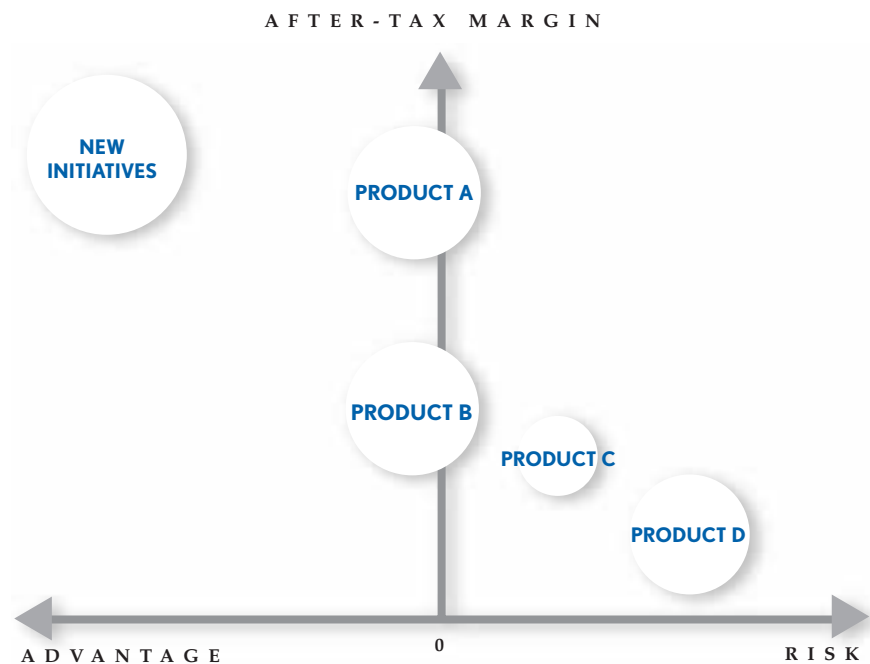
Source: Adapted from Skopec, n.d.

markets to pursue. (See Table 3.) Segregated environmental programs are doomed to retrenchment in difficult markets and cannot fundamentally alter the environmental or social footprint of a company.

Similarly, environmental programs that focus on pollution prevention in operations or manufacturing, even when they are tied to reducing costs, are often cut back during downturns and are rarely replicated across business units or facilities. Strategic intent suggests that a company's strategists are shaping the commitment. Strategy is driven by revenue and shareholder value more than by cost and efficiency. Du Pont was one of the first companies to map their business value against environmental challenges. Several years ago the company developed a framework that allowed it to map every business. (See Figure 13.)

As Du Pont looked at its businesses, the leadership saw that new investment should be profitable and can be environmentally friendly. The company is now broadening the environmental challenge to a sustainability index. The challenge is to push toward higher value and higher sustainability for businesses.

Figure 13. DU PONT'S MAPPING OF BUSINESS OPPORTUNITIES AGAINST ENVIRONMENTAL RISKS AND ADVANTAGES



Source: Du Pont.

SHORTENING THE VALUE CHAIN: EFFICIENCY AND REVENUE GROWTH

A value chain is most efficient when there are few transactions between producers and their final customers. Companies that are serious about their environmental legacy will strive to shorten their value chain from natural resource to final customer. This will facilitate the exchange of materials from waste streams to raw material. It will reduce transaction costs among suppliers. And it will add customer value by making customer needs known through the entire chain.

Shortening the value chain may also be a way to accelerate revenue growth. Many businesses have moved downstream and captured the customer interface, acting as the main intermediary and delivery channel for products and services to the customer. American Airlines, for instance, did this with its Sabre system, a travel booking interface now used by many travel agents. The Sabre system did so well that it spun off as an independent company. Owning the customer interface enhanced American's profitability by rewarding agents who book passengers on American over its competitors. (See <http://www.sabre.com/corpinfo/history.htm>)

A strategy that moves to the delivery of value and away from the production of product requires a new set of skills in forming alliances and partnerships. Supplier relationships become the key competitive advantage, which rests on interconnecting relationships. Thus, instead of a linear chain, the relationships among suppliers becomes a web, with ample connections for new entrants and innovation.

The ecological sustainability of the entire system is enhanced by the shorter value chain. Information about customer needs is immediately available to producers, which can design greater efficiency into the system. The company that owns the customer interface can offer recovery of product, maintenance, and redistribution. The company that owns its supplier relationships can mandate the use of fewer, more responsible inputs. In this tightened supply chain, material flow can be driven to a theoretical minimum, while profits and returns to capital accelerate.

ADAPTIVE CULTURE : ALLOWING PEOPLE TO GIVE THEIR BEST

There is a large and growing literature on the value of empowering employees to give their best (see Box 10) and of creating a learning organization that responds agilely to changing market conditions. Companies that support risk taking, that devolve ownership over work into a honeycomb structure, and that give dignity and meaning to work are those that create market value. These attributes are also necessary to exploit the opportunities in our business agenda for sustainable development. A culture of innovation, learning, and respect is critical to developing businesses in such long-term, high-risk markets.

We have gleaned several lessons from those who argue for an “adaptive corporate culture”:

- First, viewing employees as partners in the operations of the company—both financially (through incentives) and practically (by involving them in decisionmaking processes)—yields better returns than simply viewing them as labor input.
- Second, work that is challenging and complex will inspire employees to maintain their enthusiasm and productivity.
- Third, framing these challenges in terms of outcomes, rather than tasks, will allow employees to be more goal-oriented.
- Fourth, the values-driven workplace is more productive than one run purely for financial return, as long as new ideas are welcomed.

Whether a company has an adaptive culture or a hierarchical one, the enrollment of people in environmental and social activities can be successful. In order for this to occur, environmental and social goals must be articulated as business objectives. These objectives must have

Box 10. LINKS BETWEEN BUSINESS PERFORMANCE AND INVESTMENT IN HUMAN POTENTIAL

Great progress has been made in uncovering the links between business performance and investment in human potential. One of the most thoughtful contributors to this literature is Peter Senge, who wrote *The Fifth Discipline*, a manifesto for change and the “learning organization.” Senge’s work emphasizes systems thinking, shared visions, and team learning. Another important contribution comes from the work of Tom Peters, whose recent book *The Circle of Innovation* argues for the “transformation of every ‘jobholder’ into a full-fledged businessperson” because the sustainable competitive advantage comes only from consistently out-innovating your competitors. Whether employees are uneducated factory workers in Sri Lanka or college-educated engineers in Poland, there are basic tenets of work and workplace design that will elevate productivity and build dignity.

Sources: Peters, 1997; Senge, 1994; Senge and others, 1994.

staying power to overcome inertia. Incentives for employees must be aligned with the objectives. Employee evaluations should include rewards for identification of environmental opportunities, managers should be evaluated on their business unit's environmental performance, and environmental and social stewardship should be in the job description of every worker throughout the entire management structure. New corporate programs, CEO exhortation, and public pressure all will amount to little if the people who are in a position to make the changes are not directly rewarded for it.

B E N C H M A R K I N G P R O G R E S S : S O M E Q U E S T I O N S T O A S K

A good starting point for assessing where your business stands in relation to these six management success factors is to ask yourself a few key questions in each area:

Leadership

Do stars in your company lend credence to sustainable development?
Do pursuers of this issue become stars?
How many senior leaders push this issue?
How many environmental managers have been business unit managers, and vice versa?

External Engagements

How many associations do you belong to?
What NGO partnerships are you involved in?
What is the business impact of these?
Do you consult outsiders in your strategic planning?
From how far afield?

Measurement

What do you measure?

Who sees it?

Who uses it?

Do you fully capture your environmental, social, and financial performance?

Strategic Intent

Is this issue mentioned as part of any business planning process?

Does the business value of environmental and social investments get measured? Seriously?

How often does the board address this issue? With what tone?

Would you characterize your company's involvement as: Learning?

Defensive? Proactive? Aggressive? Revenue oriented?

Cost-oriented?

Value Chain

Do you engage customers and suppliers? Competitors?

Are you attempting to shorten the value chain in any business?

Adaptive Culture

What are you doing to involve people in this issue? At what level?

Do you have an empowered, risk-taking culture?

Is this issue a factor in recruitment?

5 . T H E P A T H F O R W A R D

In the 1970s and 1980s, environmental protection and social development were almost solely in the realm of public policy. In the 1990s and beyond, business is taking the lead. The role of business is changing from observer and victim to shaper and advocate. The only way for business to assume such a powerful positive role is to take a market approach and to generate rewards for creating environmental and social goods. There will always be a role for public policy to pave the way for leaders and push along the laggards. Leaders in business need to help design these policies.

Many observers wonder how far business leadership can take sustainable development without public policy interventions. Critics point to the low price of fossil fuels in the United States; the massive subsidies of fossil-fuel-based infrastructure such as roads, power systems, and airports; the subsidies of chemically based agricultural techniques; the lack of social safety nets in many countries; and tax structures nearly everywhere that tax labor and not natural resources. Others point to the massive flows of financial capital to environmentally damaging businesses, which enrich elites and impoverish the poor, or to the capital markets that appear to either ignore or punish the efforts of environmental and social leaders.

The will to move commerce toward more sustainable paths is emerging in the private sector among leaders who do not focus on policy limitations. They look instead to technology, information, and new forms of value creation. Certainly these individuals will eventually bump into insurmountable barriers that will only be changed by policy initiatives. But this process has barely begun. The limits are not



in sight. Business may not be able to transform the economy alone, but it can certainly take us a long way.

Business must take a lead in sustainable development for at least two reasons. First, the political will in most countries to alter environmental and social policy substantially is simply not there. We could wait a very long time for the needed changes—and time is one commodity we do not have. Second, the innovative power of the private sector has barely been tapped on these issues. The pursuit of wealth is one of the strongest motivators for behavioral change, and this is only now being directed toward a broader agenda of sustainable development.

As leaders in some industries approach the limits of what is possible, they will be the first in line requesting policy change. Higher standards will disadvantage their laggard competitors and elevate the entire landscape. The political will of a society backed by industrial leaders will be far greater than when industry collectively opposes change.

There are incipient signals of business advocacy for change. The 1,400 members of Businesses for Social Responsibility, for instance, generate support for change on climate policy, labor practices, and human rights. Individual companies like British Petroleum have taken public stands for change. Quieter players like Whirlpool and Michelin have advocated more stringent energy standards for their products. These examples are promising, and others will follow in short order as the market value of being an environmental and social leader grows.

We are living in an unprecedented era—a time when business has the opportunity to make unique and invaluable contributions to creating a better, more sustainable world. The challenge is before you. Good luck.

ABOUT THE AUTHORS

Matt Arnold founded and currently directs WRI's Management Institute for Environment and Business (MEB). He and his colleague **Rob Day** are active in MEB's efforts to bring WRI's sustainable development agenda to business.

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